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SYSTEM TESTING, INSPECTION AND MAINTENANCE INFORMATION SHEET

SECTION 1 – INTRODUCTION

This fire safety information sheet is based upon the 2007 Minnesota State Fire Code (MSFC) and the 2007 Minnesota State Building Code (MSBC). The requirements outlined in this information sheet apply only to the system testing, inspection and maintenance of sprinkler systems, alarm systems, commercial cooking systems, portable fire extinguishers and other fire protection equipment.

The purpose of this information sheet is to provide uniform application of MSFC (07) provisions relating to suppression detection and smoke removal system testing, inspection and maintenance.

This information sheet provides an overview of the major code requirements that apply for the system testing, inspection and maintenance of fire protection systems and does not attempt to cover every situation. References to the applicable code sections are found in brackets, [].

More information is available from the State Fire Marshal Division by ending an e-mail to firecode@state.mn.us or check out our web page at www.fire.state.mn.us for the latest information on fire in Minnesota.

SECTION 2 – SYSTEM TESTING, INSPECTION AND MAINTENANCE

Periodic inspection and testing is required for fire sprinkler systems, fire hydrant systems, standpipe systems, fire alarm systems, portable fire extinguishers, smoke and heat ventilators, smoke removal systems and other fire protection appliances [MSFC (07) Section 901.6.1, as amended].

TABLE 901.6.1	
FIRE PROTECTION SYSTEM TESTING AND INSPECTION MAINTENANCE	
SYSTEM	STANDARD
Portable Fire-Extinguishers	NFPA 10
Carbon Dioxide Fire-Extinguishing Systems	NFPA 12
Halon 1301 Fire-Extinguishing Systems	NFPA 12A
Dry-Chemical Extinguishing Systems	NFPA 17
Wet-Chemical Extinguishing Systems	NFPA 17A
Water-Based Fire Protection Systems	NFPA 25
Fire Alarm Systems	NFPA 72
Water-Mist Systems	NFPA 750
Clean-Agent Extinguishing Systems	NFPA 2001

Reports of inspection, testing and maintenance shall be maintained on premises for review [MSFC (07) Section 901.6.2].

Suppression, detection and smoke removal systems shall be properly serviced and returned to full operating condition after activation.

Detailed inspection and testing documentation shall be maintained on site and available for review. Records shall be retained until the next test and kept at the premises for at least three years thereafter [MSFC (07) Section 901.6.2].

SECTION 3 – Fire Sprinkler Systems and Equipment

3.1 Frequency of Inspection

Automatic fire protection systems shall be inspected and tested as required by MSFC (07) Section 901.6.1, as amended. This section of the MSFC references MSFC (07) Table 901.6.1 for “Fire Protection Systems Maintenance Standards” for inspection testing and maintenance frequencies.

IFC Section 901.6.1. IFC Section 901.6.1 is amended by adding an exception to read:

Exception: Fire alarm and automatic fire-extinguishing systems shall be inspected and tested at least annually. Inspections and testing shall be conducted in accordance with the procedures specified in the referenced standards listed in Table 901.6.1.

3.2 How the Inspection is to be conducted

The annual inspection and testing of sprinkler systems shall follow, at a minimum, Chapter 5 of NFPA 25 (02). Procedures with a frequency less than yearly shall also be completed during the annual inspection and testing. The owner is responsible for this annual inspection and test of the sprinkler system, which shall be completed by a licensed sprinkler contractor employing licensed journeymen sprinkler fitters [MSFC (07) Section 901.6.1 and Minn. Rules § 7512.2800].

SECTION 4 – DETECTION AND ALARM SYSTEMS

4.1 Frequency of Inspection

It is the policy of the State Fire Marshal Division that detection and alarm systems shall be tested at least annually [MSFC (07) Section 901.6.1]. Fully addressable/intelligent fire alarm systems still require testing and inspection on an annual basis since there are maintenance items that are required that cannot be monitored by the alarm system (visual inspection, obstructions near detectors, cleaning of detectors, etc.).

4.2 How the Inspection is to be conducted

The annual inspection and testing of alarm systems shall follow, at a minimum, Chapter 10 of NFPA 72 (02). Procedures with a frequency less than yearly shall also be completed during the annual inspection and testing. The owner shall provide for proper testing and maintenance of the system.

Individuals performing testing and maintenance shall be qualified and knowledgeable in the equipment operation and test procedures of installed systems. Examples of qualified personnel include the following [NFPA 72 (02), Chapter 10]:

- a. Factory trained and certified,
- b. National Institute for Certification in Engineering Technologies (NICET) certified in fire alarm systems,
- c. International Municipal Signaling Association Fire Alarm certified
- d. Trained and qualified personnel employed by an organization listed by a national testing laboratory for the servicing of fire alarm systems.

4.2.1 Power limited (low voltage) systems.

Testing and maintenance shall be performed by employees of a licensed alarm and communications contractor [Minn. Stat. § 326.2421, subd.3] or licensed electrical contractor [Minn. Stat. § 326.242, subd. 6]. The employees of a licensed alarm and communications contractor or licensed electrical contractor need not be individually licensed [Minn. Stat. § 326.242, subd. 12b].

4.2.2 Non-power limited (high voltage) systems.

Testing and maintenance shall be performed by employees of a licensed electrical contractor. Employees of a licensed electrical contractor working on non-power limited fire alarm systems must also be licensed electricians [Minn. Stat. § 326.242, subd. 6].

4.3 Use of canned smoke products

Aerosol smoke products can be used to test smoke detectors, but they must be listed and used only as directed. The use of non-listed products or improper use of listed products may affect the smoke alarm's sensitivity. This is a "go, no go" type of test that only ensures smoke entry into the chamber and alarm response. It does not test the detector's sensitivity since it is not a calibrated test method.

SECTION 5 —SUPPRESSION SYSTEMS FOR COMMERCIAL COOKING EQUIPMENT

5.1 Commercial Cooking Systems

Hoods, grease-removal devices, fans, ducts and other appurtenances shall be cleaned at intervals necessary to prevent the accumulation of grease. Chemical extinguishing systems are required to be inspected at least every six months by qualified individuals and after activation [MSFC (07) Section 904.11.6.4]. If these systems are connected to a potable water supply (one or two agent systems) the work does not need to be done by a licensed sprinkler contractor according to the SFMD policy FP-03 titled, *Water-Assisted Chemical Kitchen Hood Fire Suppression Systems*. For seasonal installations, inspections shall be conducted at least yearly. Water-based kitchen hood systems need only be inspected annually by a licensed sprinkler contractor.

SECTION 6 — PORTABLE FIRE EXTINGUISHERS

6.1 Portable Fire Extinguisher Servicing

Portable fire extinguishers shall be in accordance with MSFC (07) Section 906 and National Fire Protection Association (NFPA) Standard 10 (02). A “quick check” for all fire extinguishers is necessary on a monthly basis. Minimal knowledge is necessary to perform this inspection [NFPA 10 (02), Chapter 6]. Extinguishers shall receive maintenance at least yearly. Maintenance, servicing and recharging shall be performed by trained persons having available the appropriate servicing manuals, the proper type of tools, recharge materials, lubricants, and manufacturer’s recommended replacement parts [NFPA 10 (02) Section 6.1.4].

SECTION 7 — OTHER FIRE PROTECTION EQUIPMENT

7.1 Standpipe systems

Standpipe systems shall be inspected and tested at least every five years. Inspection and testing is to be conducted by either a licensed sprinkler contractor or a plumber licensed under Minn. Stat. § 326.40. Standpipe systems that are combined with automatic sprinkler systems shall be tested and inspected by a licensed sprinkler contractor.

7.2 Smoke control/removal systems

Routine maintenance and inspection of smoke control systems shall be conducted in accordance with the manufacturer’s instructions. All equipment such as initiating devices, fans, dampers, controls, doors and windows shall be tested. A written schedule of testing shall be maintained at the premise.

7.3 Special suppression systems

Special suppression systems (halon, dry chemical, clean agent, etc) shall be inspected and tested at least annually [MSFC (07) Section 901.6.1, as amended]. Inspection and testing is to be conducted by qualified individuals. Foam type suppression systems shall be inspected and tested by licensed sprinkler contractors at least annually.

7.4 Emergency voice alarm-signaling systems

Emergency voice alarm-signaling systems shall follow the inspection and testing requirements for fire alarm systems, Section 3.

7.5 Fire pumps

Fire pumps shall be inspected and tested at least annually [NFPA 20 (03) Chapter 14]. The annual inspection and testing of fire pumps shall follow, at a minimum, Chapter 14 of NFPA 20 (03). Procedures with a frequency less than yearly shall also be completed during the annual inspection and testing. To insure the highest reliability possible, at least monthly pump operation under no-flow conditions will be enforced [MSFC (07) Section 901.6.1]. The owner is responsible for this annual inspection and test, which shall be completed by a licensed sprinkler contractor employing licensed journeymen sprinkler fitters.

7.6 Emergency generators

Emergency generators shall be inspected in accordance with NFPA 110 (02) and shall be exercised under load at least monthly [NFPA 110 (02) Section 8.4.1]. More frequent inspection and testing may be required by the manufacturer or other regulatory agency (health care, for example).

7.7 Emergency Lighting

Emergency lighting and means of egress illumination, including battery pack systems, shall be tested on a regular basis to ensure proper operation and repaired or replaced when necessary [MSFC (07) Section 1027.5].